AMENDMENTS TO THE CLAIMS

Claim 1. (Currently Amended) An ink jet printhead comprising:

one or more ejection modules each including:

a silicon chip having a front,

a plurality of ejection nozzles arranged adjacent to an edge of the module,

ejection cells for said nozzles,

delivery channels for the ink of the cells,

a distribution channel ~~adjacent to the front~~ extending orthogonally to the delivery channels, each distribution channel having a first edge in fluid communication with the delivery channels and a second edge ~~opposite the first edge~~ aligned along the front of the silicon chip, and

a nozzle layer integrated with the relative chip and in which the ejection nozzles are made parallel to the front;

a support for mounting the module or the modules and which defines a feeding duct for the ink, the feeding duct being in fluid communication with ~~said delivery channels~~ the front of the silicon chip and the distribution channel;

a seal between the module or the modules and said support arranged to form a fluid seal between the feeding duct of the support and the ejection cells of the module or of the modules; and

a plurality of ribs located in each distribution channel between one or more delivery channels, the ribs extending transversely across the distribution channel from the first edge ~~to~~ toward the second edge, and bearing against the nozzle layer;

wherein there is one pair of ribs for each delivery channel or one pair of ribs for a plurality of delivery

channels.

Claim 2. (Previously Presented) Printhead according to claim 1, characterized in that, in said module or in each module, the ejection cells are positioned at 0.5-1.0 mm from said front.

Claim 3. (Previously Presented) Printhead according to claim 1, characterized in that said distribution channel is defined by a surface etching in the relative silicon chip.

Claim 4. (Previously Presented) Printhead according to claim 1, wherein each chip defines a reference surface upon which are arranged said ejection cells, and the distribution channel of the module or of the modules is made in an area of a reference surface that includes said front; said seal includes a sealing lamina having an edge adjacent to the nozzles and mounted to provide fluid sealing between the nozzle layer and said support and to cover the feeding duct.

Claim 5. (Previously Presented) Printhead according to claim 1, characterized in that said ribs are set adjacent to each delivery channel.

Claim 6. (Previously Presented) Printhead according to claim 1, characterized in that said ribs are set adjacent to a plurality of delivery channels.

Claim 7. (Previously Presented) Printhead according to claim 1, characterized in that the nozzle layer

defines the ejection cells and the delivery channels, and is fastened to said ribs.

Claim 8. (Previously Presented) Printhead according to claim 4, characterized in that the sealing lamina is limited by a tapering edge adjacent to said nozzles.

Claim 9. (Previously Presented) Printhead according to claim 1, characterized in that the distribution channel is of width 0.3-1.0 mm and said ribs extend for a distance of 0.2-1.0 mm in said distribution channel.

Claim 10. (Previously Presented) Printhead according to claim 1, characterized in that said ribs are of width 15-30 μm.

Claim 11. (Previously Presented) Printhead according to claim 1, wherein the cells and the delivery channels rest upon a given surface of said chip, said head being characterized in that, in said module or in each module, the distribution channel is made on a surface of the chip opposite to said given surface, facing the feeding duct of the mounting support and wherein ducts or slots are provided, passing through said chip which provide fluid connection between the distribution channel on said opposite surface and the delivery channels on said given surface.

Claim 12. (Previously Presented) Printhead according to claim 11, characterized in that said nozzle layer acts as a fluid seal for said cells and for said channels with respect to said given surface of the chip.

Claim 13. (Previously Presented) Printhead according to claim 11, characterized in that said distribution channel is adjacent to said front, has no bank and defines in the chip a projecting section of lesser thickness and in which said nozzle layer extends over said projecting section.

Claim 14. (Previously Presented) Printhead according to claim 11, characterized in that said seal includes sealing material inserted between the nozzle layer and/or the chip and said support.

Claim 15. (Previously Presented) Printhead according to claim 1, characterized in that said nozzle layer defines spaces above the substrate for a height of 10-25 μm in said cells and in said delivery channels.

Claim16. (Previously Presented) Printhead according to claim 1, characterized in that it may be used in a parallel or serial-parallel type printing device and comprises a plurality of modules aligned along said front and in which said support comprises a board of rigid material that defines said feeding duct through its thickness; and in which said modules are mounted side by side on said board and with the nozzles aligned parallel to the front.

Claim 17. (Previously Presented) Printhead according to claim 16, characterized in that it includes a frame mounted on said board beside said ejector modules having the upper surface adjacent to the upper surface of the nozzle layers of the modules.

Claim 18. (Previously Presented) Printhead according to claim 4, characterized in that the upper

surface of the frame is substantially flush with the upper surface of the nozzle layers and wherein said sealing lamina is mounted tight on the frame and on the nozzle layers of the modules, in correspondence with the ribs.

Claim 19. (Previously Presented) Printhead according to claim 11, characterized in that said sealing material is arranged between said frame and the nozzle layer or the relative chip of the modules.

Claim 20. (Currently Amended) Process for manufacturing an ink jet printhead, comprising the steps of:

preparing ejector modules, each including:

a chip substrate with a relative front having a plurality of resistors,

ejection cells and delivery channels for the ink of the cells,

a distribution channel, extending orthogonally to the delivery channels, the distribution channel having a first edge in fluid connection with the delivery channels and a second edge ~~opposite to the first edge~~ aligned along the front of the chip substrate, and

a nozzle layer having ejection nozzles aligned with said front and arranged above the resistors and in which the head includes a support having an ink feeding duct for one or more modules, the ink feeding duct being in fluid communication with the front of the silicon chip and the distribution channel;

wherein assembling the ink jet printhead comprises:

mounting the module or modules on said support so as to have the distribution channel or channels in fluid communication with said feeding duct;

hydraulically sealing the nozzle layer of the module or of the modules from said support, for ink-tightness in feeding the ink between the feeding duct and the nozzles through said delivery channels;

making an etching on a given face of the chip to produce said distribution channel between the front and an area adjacent to the resistors and parallel to the front;

producing sacrificial volumes for defining the limits of the ejection cells above the resistors and the delivery channels above the area;

applying a structural layer over said sacrificial volumes to define said nozzle layer;

wherein said etching step produces on said face, in addition to the distribution channel, a series of ribs that extend transversely across the distribution channel from first edge to the second edge, and in which a part of the sacrificial volumes extend into the space between said ribs and on said distribution channel,

further wherein a part of the structural layer is applied on the ribs and remains fastened on said ribs after removal of the sacrificial volumes.

Claim 21. (Previously Presented) Process according to claim 20, further comprising:

producing the ejection nozzles on said structural layer in correspondence with the sacrificial volumes of the cells.

Claim 22. (Cancelled)

Claim 23. (Previously Presented) Process according to claim 20, characterized in that producing the sacrificial volumes comprises:

(a) covering said distribution channel with sacrificial photoresist, flush with said data face of the chip;

(b) planarizing the photoresist covering the channel and cleaning the parts adjacent to said distribution channel;

(c) applying a layer of controlled thickness of sacrificial photoresist on said substrate above the resistors, the ribs and the photoresist covering the channel;

(d) exposing with a mask said layer of controlled thickness for defining said cells, the delivery channels and the distribution channel and delimiting said ribs; and

(e) developing said layer of controlled thickness constituting the sacrificial volumes for said cells, for the delivery channels and for the distribution channel and leaving zones for attachment of the chip beside said cells and the distribution channels and on said ribs.

Claim 24. (Previously Presented) Process according to claim 20, characterized in that said longitudinal etching is made on the face of the chip, opposite the said given face, forming a projecting section delimited by said front and in which a slot forming step is provided, in which slots are produced in the thickness of the projecting sections and in correspondence with the delivery channels and in which, for assembling of the head, the modules are mounted on the bearing surface of the support with said slots in fluid connection with the feeding duct of the support.

Claim 25. (Previously Presented) Process for manufacturing a printhead according to claim 20, characterized in that said support includes a board with a bearing surface for said chips and an upper surface adjacent to the feeding duct and a distance from said bearing surface and wherein said upper surface

is defined by a frame or is obtained directly from the board, the sealing step including the insertion of a seal between the chip or the structural layer and said upper surface.

Claim 26. (Previously Presented) Process according to claim 22, characterized in that said seal includes a sealing lamina glued between said upper surface and the structural layer, in contrast with said ribs.

Claim 27. (Previously Presented) Process according to claim 24, characterized in that said seal includes sealing material inserted between the fronts of the chips and said upper surface.

Claim 28. (Cancelled)